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ABSTRACT

The behavior of the infant with prenatal drug exposure (PDE) is different from a nonexposed infant, and it is a difference that changes the rules of interaction for the caregiver. Infants exposed to opiates such as heroin or methadone demonstrate very specific signs of neurobehavioral dysfunction as they go through classic withdrawal symptoms. Infants exposed to cocaine exhibit somewhat more subtle behavioral dysfunction, but many of the same symptoms are present. Infants with PDE have poor self-regulatory abilities and are either crying or sleeping. Motoric differences are evident in tone and movement. Autonomically, infants with PDE frequently have persistent tremors, startles, moderate tachypnea, and other signs. All of these signs of neurobehavioral dysfunction range from severe to moderate and often are still present throughout the first months of life. Reduction of stimuli is the key, as infants' dysfunctional behavior is the manifestation of overstimulation. Caregiving techniques include protection from light and noise, swaddling, gentle vertical rocking, soft quiet voice, quiet feedings, and careful phasing in of visual and auditory stimuli. (Contains 35 references.) (JDD)

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Intervention Strategies for the Child with Prenatal Drug Exposure

Jean Gardner Cole,M.S.

The behavior of the infant with prenatal drug exposure,(PDE), is different from a non-exposed infant, and it is a difference that changes all the rules of interaction for the caregiver.

Behavioral differences range from dramatic to subtle but can be identified by the use of the Brazelton Neonatal Behavioral Assessment Scale, (Brazelton,1984, Eisen,1991), which asseses neurobehavioral competence during the first month of life. Or by the Index of Neurobehavioral Dysfunction in Infants,(INDI), an unpublished screening assessment developed by this author. (Cole,1991)

Infants exposed to opiates such as heroin or methadone demonstrate very specific signs of neurobehavioral dysfunction as they go through classic withdrawal symptoms. These symptoms are evident in central nervous system disturbances such as an excessive high pitched cry, hyperactive moro,tremors,increased muscle tone, excoriations, constant activity,seizure activity. In the metabolic/vasomotor/respiratory systems, disturbances are evident in sweating,frequent yawning, nasal stuffiness, sneezing, nasal flaring, and increased respiratory rate. Disturbances in the gastrointestinal system are evidenced in excessive sucking,poor feeding, regurgitation,loose or watery stools. (Finnegan,1985).

Infants exposed to cocaine exhibit somewhat more subtle behavioral dysfunction ,but many of these same symptoms are present. (Flandermyer,1987). However, when these behaviors are clustered into the behavioral parameters of autonomic,motor, state, attention-interaction and self-regulatory abilities, as in Als Theory of Synactive Development, (Als,1982),a pattern of dysfunction emerges. Lester et al have documented neurobehavioral syndromes in infants exposed to cocaine. (Lester,1991).

A healthy, non-exposed,well organized, full term infant, usually can transition through states of consciousness smoothly. He can habituate to stimulation during sleep, come to an alert state and interact with his caregivers, and console relatively easily when in an aroused state. He also has a sophisticated repertoire of self-regulatory strategies to use in self-consoling. (Brazelton,1984,and D'Apolito,1991).

Infants with PDE often have difficulty with state range and state regulation. They are either crying or sleeping and have poor self-regulatory abilities. They frequently have an inability to habituate to repeated stimuli during sleep and in attaining a deep sleep state. They have difficulty transitioning from sleeping to waking. When awake, some infants have a low, dull state of alertness, making interaction difficult and

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unrewarding for their caregivers. (Bresnahan,1991). They frequently gaze avert and appear to have poor inhibition to auditory stimuli, responding immediately, then being overstimulated , resulting in turning away and fussing. (Shih,1988). Some infants with PDE have difficulty sustaining a cry, while others are very irritable and difficult to console. (Lester,1991).

Motoric differences in the infant with PDE are evident in tone and movement. They tend to be hypertonic in the extremeties but have low truncal tone. Range of motion can be limited and movement patterns jerky. Reflexes are frequently brisk with strong grasp noted, strong plantar reflex and brisk response to Gallant's reflex,(incurvation of the spine). Standing and walking are often difficult to elicit, possibly due to low truncal tone. (Schneider,1989). Hypertonicity and poor state control appear to contribute to poor self-regulation and infants with PDE tend to be at the mercy of the environment and are often difficult to care for.

Autonomically,infants with PDE frequently have persistent tremors, startles, moderate tachypnea,color change with mottling and paling and flaring of the nares. Setting sun eyes have been observed in some but not all infants with PDE. (Cemerurd,1975, Cole,1991).

All of these signs of neurobehavioral dysfunction run the gamut from severe to moderate findings, and often are still present at two weeks of age when one would expect early adjustments to extra-uterine life to have been successfully completed. In a recent study assessing the effects of cocaine exposure prenatally , behavioral dysfunction at two weeks of age was present in many of the infants in the study, and continued in some of the infants up to four months of age.(personal communication). Cranial ultra-sound has discovered brain abnormalities in some infants exposed prenatally to cocaine. (Frank,1993).

Interventions for infants with PDE, whether exposed to opiates or cocaine are similar and are based on the author's work with high risk preterm infants.(Cole,1985, Parker,1992,Zahr,1990). These intervention techniques are effective with any infant exhibiting neurobehavioral dysfunction for whatever reason. (Zuckerman,in press,Russell,1991, Moore,1993).

Reduction of stimuli is the key. Infants with PDE are exhibiting signs of overstimulation. Their dysfunctional behavior is the manifestation of that overstimulation. Because these infants have difficulty self-regulating, they have difficulty dealing with the demands of their environment. They need support from their caregivers and the environment. Protection from light and noise will aid in the development of quieter periods of sleep. Covering the infant's crib and keeping the surrounding environment quiet will also help. Swaddling the infant in soft flexion in a blanket, positioning his bare hands near his mouth will help support a more relaxed position and will initiate hand to mouth behavior for beginning

self-regulation. Hand swaddling an infant with ones hands, holding his legs and arms tucked against his body, will help a stressed infant to respond more adaptively to stress, eg., pulling into a tucked position rather than flailing which only exacerbates arousal. The caregiver is setting limits for the child which he cannot, at this time, set for himself.

Quiet, gentle handling and movement will decrease hyper-reactive responses and decrease the poor sensory integration often seen in infants with PDE. Vigorous, vestibular stimulation such as putting irritable infants in automatic swings and swinging them vigorously should not be used to calm infants, unless all else has failed. They become over reliant on this type of intervention and do not develop their own self-regulatory strategies. Gentle, vertical rocking is often successful in calming an infant out of control. Even this technique should be phased out over time to allow the infant to develop his own specific self-regulatory behaviors.

Modulated interaction, a soft,quiet voice or face during awake periods, with one modality presented at a time, can decrease the persistent gaze averting common in infants with PDE and provide moments of satisfaction for the caregiver. Careful phasing in of visual and auditory stimuli presented at the same time can be done when readiness is indicated by the infant demonstrating the ability to deal with more than one stimulus at a time. Caregivers need to learn to provide "mutual regulation" by being sensitive to the behavioral cues of the infant and providing "time out" periods when indicated. This will support positive adaptive behaviors and decrease reliance on maladaptive responses to stress and help the infant begin to use his own unique self-regulatory behaviors. (Zuckerman,in press). "Time out" simply means reducing stimulation and allowing the baby to relax before continuing.

Feeding difficulties have been reported with this population of babies. When assessed, it has been this author's experience, that most of the problems stem from unwitting over-stimulation during the feeding. Many PDE infants have a strong sucking reflex. We often equate a strong suck with good feeding. This is not always the case, and often infants with PDE have poor coordination of sucking, swallowing and breathing. Stimulation during a feeding can deplete the infant's energy, resulting in poor feeding, regurgitation, and poor weight gain. We have found that quiet feedings with reduced stimulation; dim lighting, quiet environment, helps alleviate this problem. Also, the infant should be swaddled lightly and held in a semi-upright position for feeding, without eye contact or interaction. In our experience this has reduced many of the reported feeding problems. Small, more frequent feedings have also been successful. Reduced stimulation during feeding can be phased out gradually. Assessment of the infant's readiness should be your guide.

Learning to read behavioral cues is critical in providing support for infants with PDE. Infants communicate with us via their behavior.

Documenting the infant's behavioral style is helpful in understanding his current level of development. Listing his strengths, what triggers his dysfunctional behavior and how it is manifested, provides a clear picture of the infant for all of his caregivers. A plan of how to support him becomes evident and can be implemented. Infants exposed to opiates who have been medically treated for withdrawal frequently exhibit disorganized behaviors once they have been weaned off their medication. Often they need the re-introduction of maximal developmental support and interventions until they reorganize without the benefit of medication for withdrawal symptoms. Infants exposed to cocaine continue to present dysfunctional behavior throughout the first months of life and need developmental support until signs of neurobehavioral dysfunction have abated. (Howard,1989, DeStefano, 1989).

Although the final chapters of the story on cocaine effects on infant behavior and development have yet to be written, early identification and the implementation of immediate interventions such as those described, will we feel,ameliorate the behavioral differences and difficulties seen in infants with PDE and will provide their caregivers with strategies to help maximize the potential of the infant and make caregiving less stressful and much more rewarding.

Bibliography

Intervention Strategies for the Child with Prenatal Drug Exposure

Jean Gardner Cole,MS

Howard,J.,Beckwith,L.,Rodnig,C.,Kropenske,V. **The development of young children of substance abusing parents:Insights from seven years of intervention and research** . Zero to Three,IX:12,1989.

Zuckerman,B.,Frank,D.,Hingson,R.,Amaro,H. **Effects of maternal marijuana and cocaine use on fetal growth.** New England Journal of Medicine. 320:762-768,1989.

DeStefano-Lewis,K.,Bennett,B.,Schmeder,N. **The care of infants menaced by cocaine abuse.** Maternal Child Nursing,Vol.14,Sept/Oct:324-329,1989.

Hadeed,A.,Sieggel,S. **Maternal cocaine use during pregnancy.** Journal of Pediatrics,Vol.84,No.2, August:205-210,1989.

Flandermyer,A. **A comparison of the effects of heroin and cocaine upon the neonate.** Neonatal Network Journal,December:42-48,1987.

Chasnoff,I.,Griffith,D.,MacGregor,D.,Dirkes,K.,Burns,K. **Temporal patterns of cocaine use in pregnancy.** JAMA,Vol.261,No.12,March:24-31,1989.

Nuckels,C.,Greeson,J. **Cocaine addiction:Assessment and Intervention.** Nursing Clinics of North America. Vol.24,No.1,March:33-43,1989.

Cole, J. **Drugs and Babies:A dangerous mix.** March of Dimes and Boston City Hospital Publication,1990.

Gawin F.,Kleber,H. **Neuroendecrine findings in chronic cocaine abusers:A preliminary report.** British Journal of Psychiatry,147:569-573,1985.

Mirochnick,M.,Meyer,J.,Cole,J.,Zuckerman,B. **Circulating catecholamines in cocaine exposed neonates:A pilot study.** Journal of Pediatrics,Vol.88,No.3, Sept.:481-485,1991.

Cole,J. **Indices of Neurobehavioral Dysfunction in Infants./NDI.** Presented at NAPARE Conference Chicago,1991.(unpuplished document).

Als,H. **Toward a synactive theory of development:Promise for the assessment and support of infant individuality.** Infant mental Health Journal, Vol.3,No.4,Winter,1982.

Cole,J. **High risk infants:Prenatal drug exposure,prematurity,and AIDS.**In, Readings in child development,editor Nancy Lauter-Klatell. Mayfield Publishing Co. California,1991.

D'Apolito,K. **What is an organized infant?** Neonatal Network Journal,Vol.10,No.1, August,1991.

Heagerty,M. **America's lost children:Whose responsibility?** Journal of pediatrics,Vol. 118, No.1,1991.

Russell,F.,Free,T. **Early intervention for infants and toddlers with prenatal drug exposure..** In,Infants and young children:An interdisciplinary Journal of special care practises. Vol. 3, No. 4.Aspen Publishers, 1991.

Schneider,J.,Griffith,D.,Chasnoff,I. **Infants exposed to cocaine in utero:Implications for developmental assessment and intervention.** In, Infants and young children, Vol. 2, No.1, 1989.

Dixon,S.,Bresnahan,K.,Zuckerman,B. **Cocaine babies:Meeting the challenge of management.** Contemporary Pediatrics,June,1990.

Chasnoff,I. Guest Editor, **Chemical dependency in pregnancy.** Clinics in Perinatology ,Vol. 18, No.1. W.B.Saunders Co.,Phila., 1991.

Brazelton,T.B. **Neonatal Behavioral Assessment Scale.** 2nd. ed., Lippincott,1984.

Winnicott,D.W. **The child, the family and the outside world.** Pelican Books, London, 1964.

Bromwich,R.M. **The interaction approach to early intervention.** Infant Mental Health Journal,Vol. 11,No. 1, 1990.

Bresnahan,K.,Brooks,C.,Zuckerman,B. **Prenatal cocaine use:Impact on infants and mothers.** Pediatric Nursing, March/April,Vol. 1, No. 2:123-129,1991.

Eisen,L.,Field,T.,Bandstra,E.,Roberts,J.,Morrow,C.,Larson,S.,Steele,B. **Perinatal cocaine effects on neonatal stress behavior and performance on the Brazelton scale..** Pediatrics, Vol. 88, No. 3:477-480,1991

Lester,B.,Corwin.M.,Sepkoski,C.,Seifer,R.,Peucker,M.,McLaughlin,S.,Golub.H. **Neurobehavioral syndromes in cocaine exposed newborn infants.** Child Development,62,694-705,Sept.1991.

Zuckerman,B.,Bresnahan,K. **Developmental and behavioral consequences of prenatal drug and alcohol exposure.** Pediatric Clinics of North America, 38:1387-1405, 1990.

Volpe,J. **Effects of cocaine on the fetus.** In Mechanisms of Disease. Vol. 327, No. 6, pp399-407, 1992.

Cemerurd,L. **The setting-sun eye phenomenon in infancy .** Developmental Medicine, Child Neurology, 17, 445-455, 1975.

Bauchner,H.,Zuckerman,B.,McCain,M.,Frank.D.,Fried,L.,Kayn,H. **Risk of sudden infant death syndrome among infants with in utero exposure to cocaine.** Journal of Pediatrics, 113-831,4, 1988.

Zuckerman,B., Bamforth,A.,Cole,J.,Kaplan-Sanoff,M. **Intervention for cocaine exposed infants:Mutual regulation.** ((in press),1993.

Cole,J.G. **Developmental needs of PDE infants demand specific intervention strategies.** The Brown University Child and Adolescent behavior Letter. Vol. 9, No. 1, January, 1993.

Rinkel,P. **Myths and stereotypes about long-term effects of prenatal alcohol and other drug exposure** . Perinatal Addiction Research and Education UPDATE, June, 1992..

Shih,I.,Cone-Wesson,C.,Reddix,B. **Effects of maternal cocaine abuse on the neonatal auditory system.** International Journal of Pediatric Otorhinolarynology,15:245-251, 1988.

Frank,D., McCarten,K.,Cabral,H.,Levensen,S.,Zuckerman,B. **Cranial ultrasounds in term newborns:failure to replicate excess abnormalities in cocaine exposed. Journal** of Pediatric Research, 1466,1993.

Moore,P.,Camarda,M. **Drug-exposed children:Fres[illegible] for concern.** In, Pediatric AIDS Foster care Network Bulletin,Vol.5, No. 1, Spring/Summer,1993